TOPIC: HOW TO PUMP FROM DRAFT – CAL FIRE HYDROSTAT ENGINE MODEL #14, OR #15

TIME FRAME: Pass/Fail

LEVEL OF INSTRUCTION: Level II

BEHAVIORAL OBJECTIVE:

Condition: Given a CAL FIRE hydrostat engine Model #14, or #15 with empty water tank, a complement of hard suction hose, and the following items and conditions: tank to pump valve open, tank fill valve closed, suction inlet valve closed.

Behavior: The student, and an assistant, will travel to a static water source, spot the engine, prime the pump, obtain a draft, engage the main pump, charge a 1-½" or 1-¾" line, and deliver an uninterrupted stream of water at 150 PSI (± 20). After completing the evolution, the apparatus will be returned to its original condition.

Standard: With a minimum of 80% accuracy, pass/fail, according to the job breakdown

MATERIALS NEEDED:

- One (1) CAL FIRE Model #14 or #15 hydrostat engine
- Drafting pit or site
- One (1) Length 1-½" hose or;
- Two (2) Lengths 1-¾" hose
- One (1) 1 ½" combination nozzle with bale shutoff
- Three (3) Sections hard suction hose
- One (1) Suction hose strainer
- One (1) Shovel or hard sided bucket
- One (1) 15' Length rope
- One (1) Stop watch
- One (1) Performance exam per student
- Two (2) Red pens for scoring
- One (1) Clipboard
- One (1) Tally sheet
- Full wildland PPE for operator and firefighter assistant

REFERENCES:

- Vehicle Operation and Maintenance Guide

PREPARATION:

In rural settings, it is often impossible to locate a hydrant as a water source for fire suppression activities. Alternative water sources such as rivers, lakes, ponds, or swimming pools may have to be utilized in these cases. The quickest method of obtaining water from these sources may be by drafting. The ability to draft from an external water source is a basic engine operator skill.

OPERATIONS	KEY POINTS
1. Place foot on service brake	
2. Start engine	2a. Allow engine to idle
3. Safely travel to drafting location and spot the engine	
4. Set spring brake and place transmission in neutral	
5. Set-up hard suction hose for drafting	5a. Connect the lengths of hard suction hose necessary to reach the static water source. b. Ensure all female couplings have a gasket c. Connect strainer to end of the hard suction d. Use spanner wrenches or rubber mallet to tighten all connections e. Connect rope to end of hard suction strainer f. Connect hard suction hose to engine g. Place hard suction hose in water source h. Utilize shovel or hard sided bucket to keep strainer off bottom i. Connect 1-1/2” hoseline to any discharge, with the nozzle and shut-off bale connected (or discharged) to the drafting tank
6. Place valves in appropriate positions	6a. Close tank suction inlet valve b. Open suction inlet valve c. Completely
7. Engage primer	7a. 30 seconds maximum b. Look for continuous flow from primer

OPERATIONS	KEY POINTS
	c. Listen for change of pitch
	d. Feel for weight of water in hard suction hose
	e. Look for compound gauge to drop below (0)
8. Return to cab	8a. Place foot on service brake
9. Set transfer valve	9a. In proper position
10. Set engine idle	10a. Using throttle control on pump panel
	b. To 2000 RPM (± 200 RPM)
11. Adjust pump control on pump panel (If prime is lost, student must return pump control to idle and repeat steps 3 through 7)	11a. Using "T" handle pump lever, move towards the "pump" position
	b. To indicate 100 psi on pressure gauge
	c. ± 20 psi
12. Return to pump and state "Water Coming"	12a. Loudly
13. Open discharge valve	13a. Slowly
	b. Completely
	c. No water hammers
14. Return to cab	14a. Place foot on brake
15. Adjust pump control	15a. To indicate 150 psi on pump pressure gauge
	b. ± 20 psi
16. Turn on pilot valve switch	16a. To the "ON" position
17. Set pressure relief (PRV) valve	17a. To 150 psi (+/- 20 psi)
18. Return to pump panel and state "Shut Down"	18a. Loudly
19. Close discharge valve	19a. Slowly
	b. Completely

OPERATIONS	KEY POINTS
	c. No water hammers
20. Return to cab	20a. Place foot on brake
21. Disengage pump	21a. Using pump control lever
22. Disengage pump	22a. Push “T” handle lever from “pump” position to the “road” position b. Slowly c. Until engine returns to idle d. Idle for 1 minute
23. Turn pilot valve switch	23a. To the “OFF” position
24. Return engine to response ready condition	24a. Break down drafting hose b. Store equipment as instructed
25. Shut off engine	

APPLICATION:

Student to practice until proficient.

EVALUATION:

A performance examination.

ASSIGNMENT:

To be determined by instructor(s).